

**Lawrence Livermore National Laboratory**

# **Historical Hazard Identification Process for D&D**

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# Why?



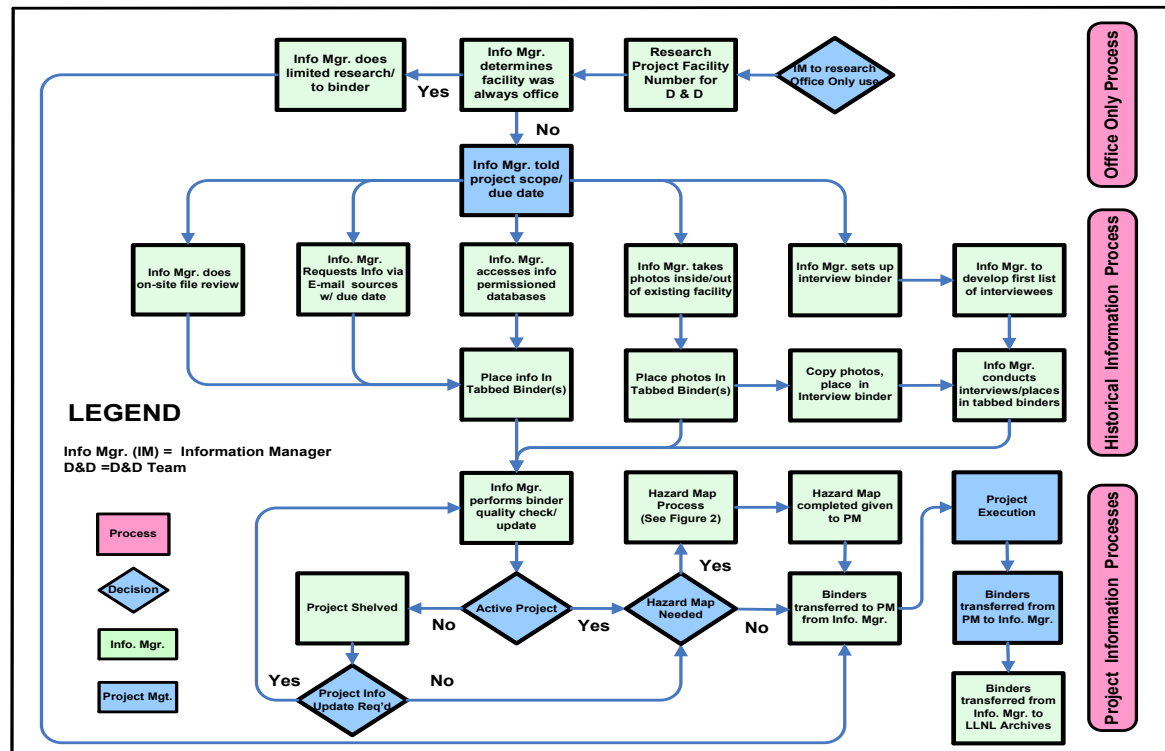
This process provides an early warning of unseen/ unexpected hazards that may have high consequences if not managed properly. In this case it prevented:

- ☐ Detonatable quantities
- ☐ Shock sensitive
- ☐ Crystalized perchloric acid
- ☐ Radioactive element release



# Historical Hazard Identification

- ❑ First critical step for all D&D projects
- ❑ No one-size process fits all sites
- ❑ Bench Mark
- ❑ Starting point
- ❑ Living process
- ❑ Long lead time



# Problem-Assumption-Solution

- ❑ How do you meet legal/ ethical requirements when it is prohibitively expensive to sample for every conceivable hazard?
- ❑ Implement a Hazards Identification Process that:
  - ❑ Identifies/Documents hazards
  - ❑ Categorizes hazards
  - ❑ Maps hazards



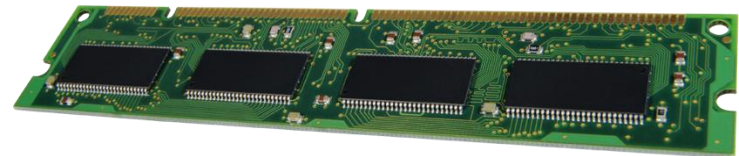
# Best Information Sources

- ❑ Current and former facility occupant interviews
- ❑ Facility hazard files
- ❑ Incident Analysis & Occurrence Reports (IAs/ ORs)



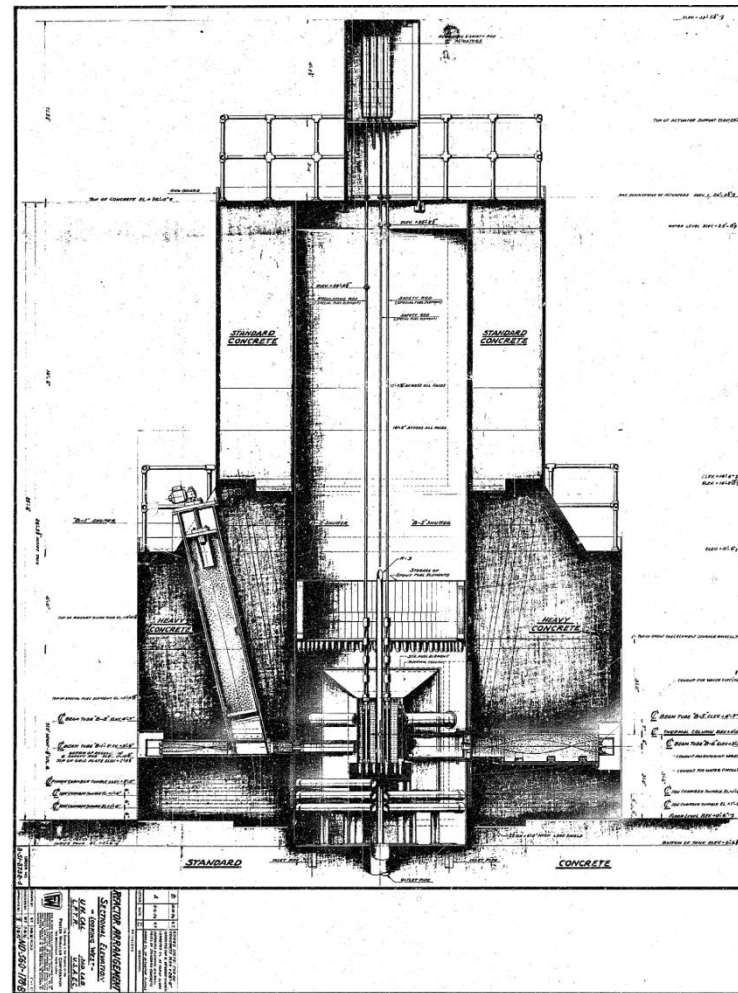
# Information Collection and Retention

- ❑ Search-pros and cons of media types
- ❑ Retrieval-pros and cons
- ❑ Media-electronic vs. paper



# Phase 1 Pre-Interview Guidelines

- ❑ **Identifying and finding the best interviewees**
  - ❑ Start with current staff
  - ❑ Develop a list-both for both on/off site contacts
  - ❑ Ask current staff about retiree's knowledge/location
  - ❑ Use Zabasearch to find retirees
  - ❑ Use local land records, Internet
  - ❑ Estimate the number of interviews
  - ❑ Establish a data base of retirees
- ❑ **Spend time preparing materials and yourself**
  - ❑ Key or Floor Plans, recent photos, diagrams/graphics
  - ❑ Develop a contact sheet with open ended questions
  - ❑ Prepare binders to familiarize yourself
  - ❑ Be organized
  - ❑ Consider using a "memory jogger" of contaminate types
- ❑ **Contacting**
  - ❑ Consider setting up a tracking sheet
  - ❑ Be flexible about when and where
  - ❑ Be persistent
  - ❑ Be punctual



# Phase 2 Interviewing Guidelines

- ☐ The first 30 seconds
- ☐ Explain the steps in the process
- ☐ Be trustworthy and respectful of their time
- ☐ Be yourself, be respectful, be appreciative
- ☐ Listen carefully, write legibly, ask leading questions
- ☐ Ask open-ended, clarifying, and follow-on questions
- ☐ Re-read/summarize/verify the information at the end



# Phase 3 Post Interview Guidelines

- ☐ All information to binders asap
- ☐ Follow-up on contact information
- ☐ More than 2 referrals
- ☐ How many interviews are enough
- ☐ Hand written thank you notes



# Hazard Information Sources

- ☐ RAD Survey 10 CFR 835 information
- ☐ HEPA filter database information
- ☐ Non-nuclear safety basis documentation
- ☐ Screening Reports
- ☐ Facility files
- ☐ Fire Department files
- ☐ Asbestos Report
- ☐ High-pressure data base



# Environmental Information Sources 1

- ☐ Facility Drain Reports
- ☐ Operation's files review
- ☐ Environmental Operations Group Spill Reports
- ☐ Environmental Permits
- ☐ Storm Water Pollution Prevention Plan



# Environmental Information Sources 2

- ☐ Retention Tank Reports
- ☐ National Environmental Policy Act information
- ☐ State Historic Preservation Office
- ☐ Hazardous Waste Management Records
- ☐ Life-cycle chemical tracking
- ☐ Subsurface information



# Restricted Data Bases

- ❑ Occurrence Reports
- ❑ Incident Analyses
- ❑ Classified Programmatic Hazard Information
- ❑ Employee Concerns Reports





# Facility Information 1

- ❑ Facility Condition Assessment Survey (CAS)
- ❑ Facility Photos-recent and historic
- ❑ DOE's Facility Information Tracking System (FIMS)
- ❑ Issues Tracking System (ITS) deficiency tracking information

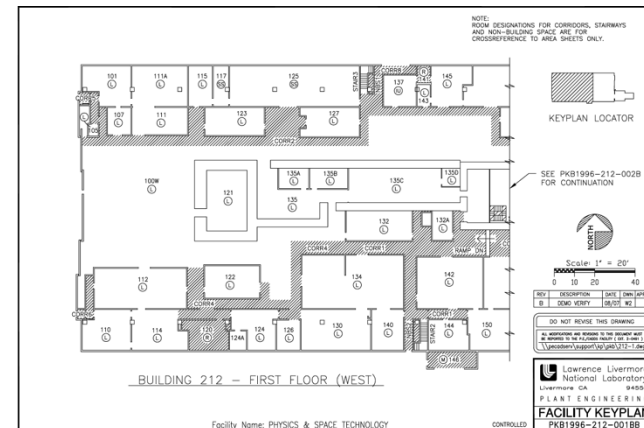
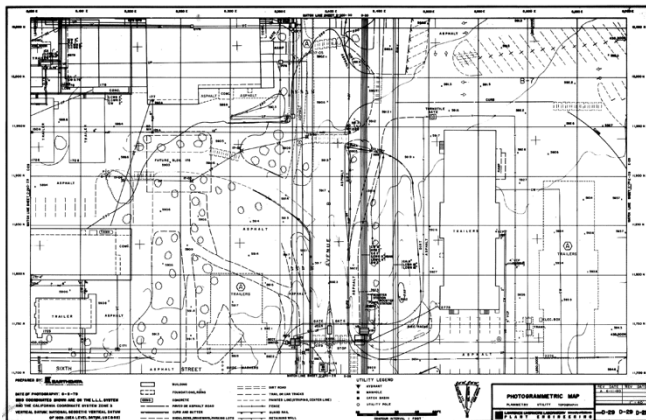


Condition Assessment Survey Facility Deficiency Summary Report	
ASSET ID: 5475	
FACILITY STATUS : ACTIVE	
FACILITY NAME: EPD/DO OFFICE	
ASSOCIATE DIRECTOR: CONNER, HAROLD T	ADFM: PIRRONE, DOUGLAS L
FACILITY USE TYPE: OFFICE	
FACILITY TYPE DESCRIPTION: MODULARS/INTERIM/PREFAB.	
CONSTRUCTION TYPE:	
B.O.D. : 11/15/1984 FACILITY AGE: 25	
GROSS SQ. FT. : 32,368	
REPLACEMENT VALUE: \$8,106,703	
FACILITY OVERALL CONDITION: FAIR	
FULL CAS BACKLOG: \$932,484	
LAST CAS INSPECTION: 6/20/2007	
ASSET COMMENT:	



# Facility Information 2

- ❑ Facility Number Designation (current and historical)
- ❑ Master Equipment List
- ❑ Phone/ Building Alarm Resources
- ❑ Information and Data Management facility files
- ❑ Floor plans/ Room sizes- area sheets/ Historical Site Plans/ Photogrammetric maps



# General Information

- ❑ Personnel Interviews
- ❑ E-mails/project correspondence
- ❑ Property Management Database
- ❑ Records Management- organizational information by facility designation
- ❑ Financial History- used to identify past and current facility 'owners' and types of use
- ❑ Archives
- ❑ Security



# Interview Contact Sheet

## **Contact Sheet**

**(Facility Number)**

**Person contacted:** \_\_\_\_\_

**Title:** \_\_\_\_\_ Facility Affiliation from \_\_\_\_\_ to \_\_\_\_\_

**Org. Representation:** \_\_\_\_\_

**Date Interviewed:** \_\_\_\_/\_\_\_\_/\_\_\_\_ by \_\_\_\_\_

**Interview type:** Personal \_\_\_\_\_ Phone \_\_\_\_\_ E-Mail \_\_\_\_\_ Site Visit \_\_\_\_\_

**Contact Information:** \_\_\_\_\_

What were your job responsibilities?

When? Do you remember any spills, fires, accidents, explosions, and unusual occurrences?

What parts of the building would you be concerned about if you or someone you knew is going to work on this demo?

Who do you think we can contact for more information on the building?

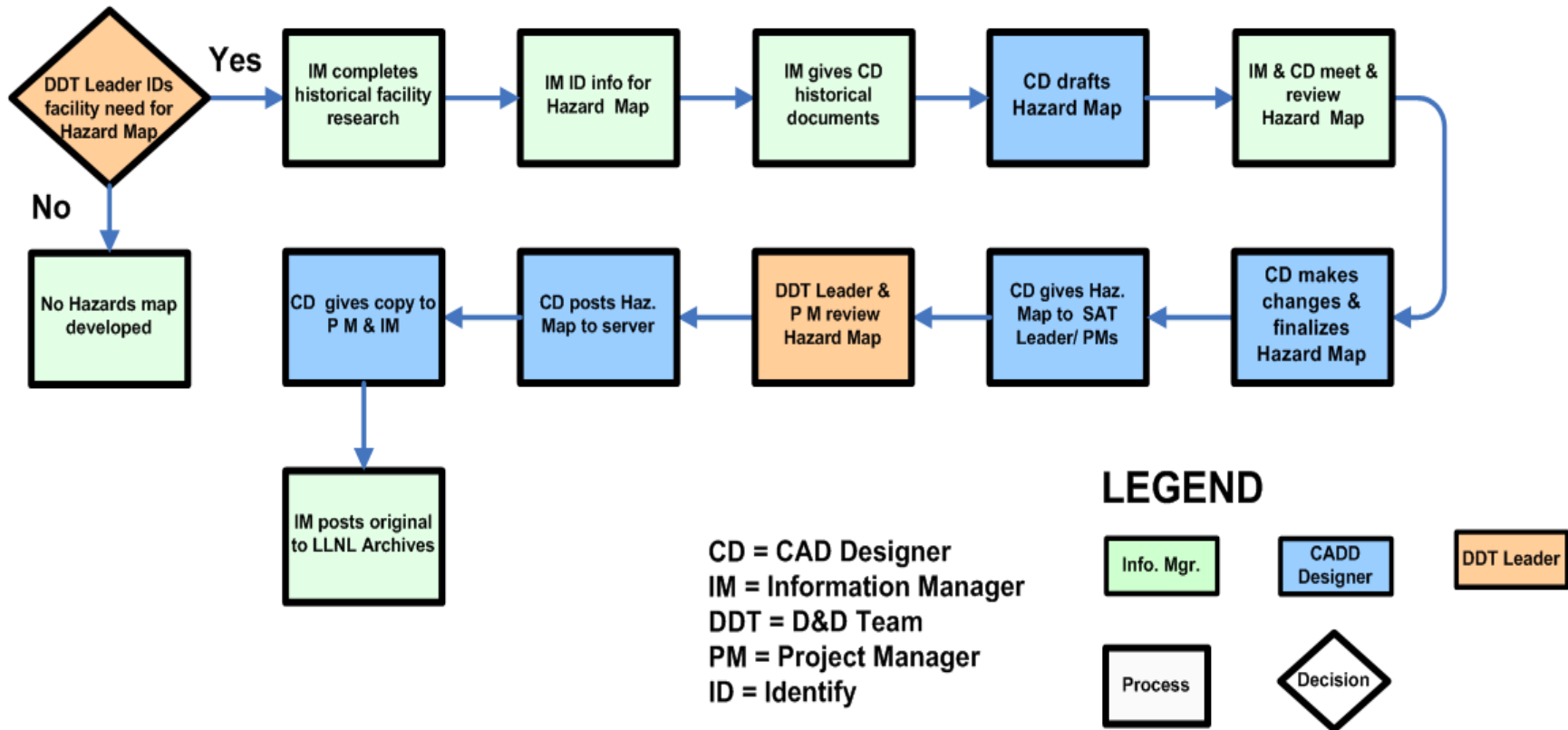


# Classification of Contaminants

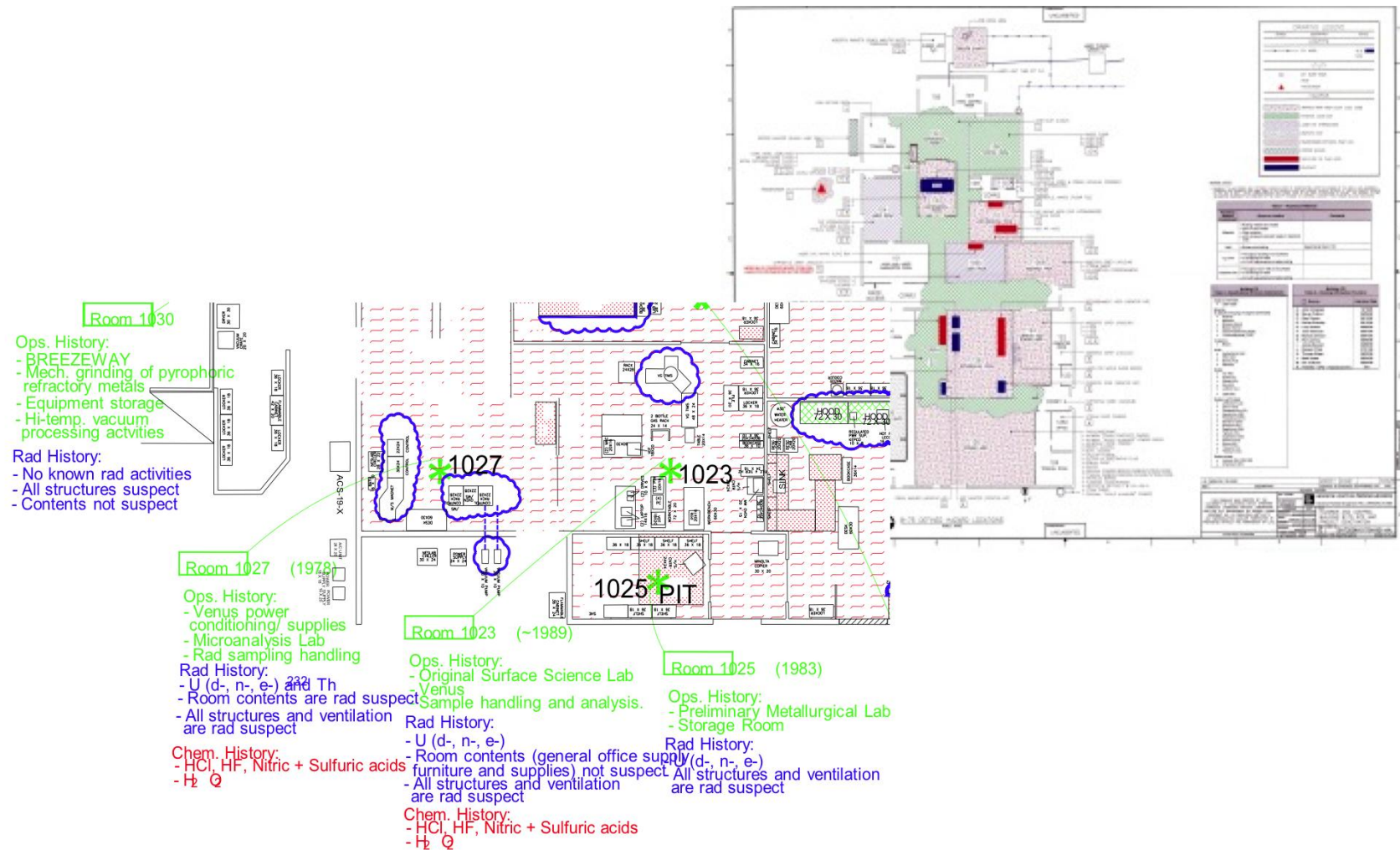
- Organic Chemicals
  - Polychlorobiphenols (PCB)
  - Chloroform
- Solvents (a specific grouping of organic chemicals) (examples)
  - Acetone
  - Toluene
  - Methanol
  - Perchloroethylene (PCE)
  - Trichloroethylene (TCE)
  - Methyl ethyl ketone (MEK)
- Inorganics (examples)
  - Cyanide
  - Boron
  - Silicon
- Heavy Metals (a specific grouping of inorganic chemicals) (examples)
  - Mercury (Hg)
  - Lead (Pb)
  - Arsenic (As)
  - Selenium (Se)
  - Beryllium (Be)
  - Aluminum (Al)
  - Iron (Fe)
  - Lithium (Li)
  - Gold (Au)
  - Silver (Ag)
  - Cobalt (Co)
  - Chromium (Cr)
- Acids (examples)
  - Nitric Acid
  - Hydrochloric Acid
  - Sulfuric Acid
  - Perchloric Acid (if acids were used ask about perchloric, specifically)
- Radionuclides (examples)
  - Uranium-234, 235, 238
  - Thorium-233, 234
  - Plutonium-238
  - Neptunium
  - Cesium-137
  - Cobalt-60
  - Tritium (H3)
  - Strontium-90
  - Europium 152, 154, 154

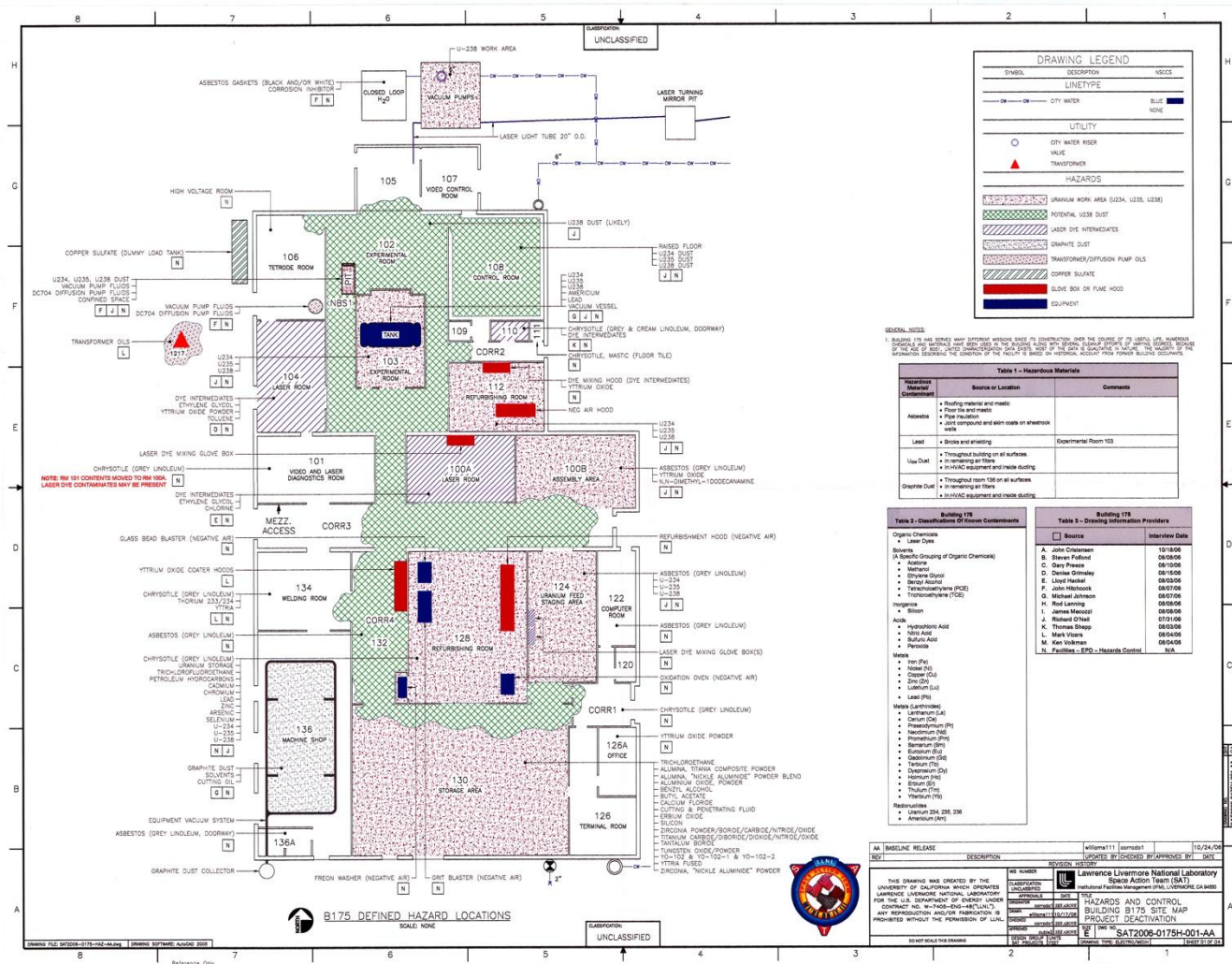


# Hazard Map Process



# Hazard Map Sample 1





# Conclusion

- ❑ Start the hazard identification process as soon as possible
- ❑ Early hazard identification
  - ❑ Is cost effective for both facility management and D&D
  - ❑ Is efficient when accomplished in a timely manner
  - ❑ Can keep people out of harms way
- ❑ With the passage of time, information is lost
  - ❑ Data-electronic and paper
  - ❑ Access-where is the information
  - ❑ Persons-transfer, retirement

